Problem Statement & Assignment:

Write a C program to create a list of software application details. The details of application include name, author, version, publishing year , price

Perform the following with respect to the list of application created.

a) Display all the details of application by a given author.

b) Sort the details of application in the increasing order of price.

c) Display the details of applications published by a given publisher in a given year.

d) Sort the list of applications in the increasing order of two fields , author and publishing year of the books.

Tools / Frameworks to be used:

1. C language.

_____

ANSWER :

```
#include<stdio.h>

#include<conio.h>

#include<string.h>

#include<stdlib.h>

#define MAX_LIMIT 20
```

Here I was used standard input/output file, string file, standard library file, and console input/ output file. #define MAX_LIMIT 20 is used to store the string at least (MAX_LIMIT + 1) characters if you intend to keep the newline character. This is done so there is enough space for the null terminating character '\0' to be added at the end of the string.

```
struct application{        // create structure for store the data

char name[20];          // name of the software application

char author[20];        // name of author , who publish the
application

float version;          // version of the software

int year;               // software published year

long price;             // price of the software
```

Here I created a structure for store the data, and create a member of the
structure. The members are char name, char author, float version, int
year. long price.

```
void swap1 (int*a,int*b){     // This swap function used for swap the
integer values

        int temp = *a;

         *a = *b ;

         *b = temp;

     }
void swap3 (long*a,long*b){     // This swap function used for
swap the long integer values

        long temp = *a;

         *a = *b ;

            *b = temp;

     }
void swap2 (float*a,float*b){  //This swap function used for
swap the float values

        float temp = *a;
```

```
    *a = *b ;

    *b = temp;

}
```

Here I used the void swap function to swap the integer (swap1), float (swap2), and Long integer value(swap3).

```
int main(){

    char temp[50];

    int n;

    int i,j;

    printf("Enter The Number of software:\n");

    scanf("%d",&n);

    fflush(stdin);        // The use of this line to clear the buffer

    struct application soft[n];  // array of object

    for(i=0;i<n;i++){

        fflush(stdin);

        printf("Enter The Software Application Name:");

        fflush(stdin);

        fgets(soft[i].name,MAX_LIMIT,stdin);

        printf("Enter The Author name:");

        fgets(soft[i].author,MAX_LIMIT,stdin);
```

```
        printf("Enter The Software version:");

        scanf("%f",&soft[i].version);

        printf("Enter The Softerware Publised year:");

        scanf("%d",&soft[i].year);

        printf("Enter The Price Of The Software:");

      scanf("%ld",&soft[i].price);

        printf("\n");

    }
```

Inside the main function, I created an array object for structure. It is a number array. Here I used fflush(stdin); to clear the buffer date so we avoid the input skip problem in the output screen. After that, I was getting t from input from the author(user). The inputs are software application name (character string), author name(character string), version of the software application(float), year of the software published(integer), price of the software(long integer).

```
for(i=0;i<n;i++){
        printf("Software Application Name
Is:%s",soft[i].name);
        printf("Author Name Is:%s",soft[i].author);
        printf("Software Version Is :%.2f\n",soft[i].version);
        printf("Software Published Year:%d\n",soft[i].year);
        printf("Price Of The Software:%ld
Rupees\n",soft[i].price);
        printf("\n");
    }
```

After getting the input from the author(user), I was print the all details using the for loop .

```
for(i=1;i<=n;i++){
        for(j=0;j<n-1;j++){
```

```
                if(soft[j].price>soft[j+1].price){
                        swap3(&soft[j].price,&soft[j+1].price);
                        swap1(&soft[j].year,&soft[j+1].year);
                        swap2(&soft[j].version,&soft[j+1].version);
                        strcpy(temp,soft[j].name);
            strcpy(soft[j].name,soft[j+1s].name);
            strcpy(soft[j+1].name,temp);
            strcpy(temp,soft[j].author);
            strcpy(soft[j].author,soft[j+1].author);
            strcpy(soft[j+1].author,temp);
                }
            }
        }
```

Here, print the details according to their price in increasing order. So I was used the bubble short for the integer data type and the normal swapping method for character string data type. Basic string function used for the character string data type. After shorting the date I was print the all details.

```
int find;
    int count =0;
    printf("Enter The Year For Search:");
    scanf("%d",&find);
    printf("**software application details,given year by
author**\n");
    printf("\n");
    for(i=0;i<n;i++){
        if(soft[i].year==find){
        printf("Software Application Name
is:%s",soft[i].name);
        printf("Author Name Is:%s",soft[i].author);
        printf("Software version is :%.2f\n",soft[i].version);
        printf("Software Published year
was:%d\n",soft[i].year);
```

```c
        printf("Price Of The Software:%ld
rupees\n",soft[i].price);
        printf("\n");
        }
        else{
            count++;
        }
        if(count==n){
            printf("No Record Found\n");
        }
```

Here I was getting years from the author and search the year inside the list of our software applications using the if statement. It's present inside the list .I was print all the details in the given year. Else I was print "No Record found".

```c
    for(i=1;i<=n;i++){
        for(j=0;j<n-1;j++){
            if(soft[j].year>soft[j+1].year){
                swap3(&soft[j].price,&soft[j+1].price);
                swap1(&soft[j].year,&soft[j+1].year);
                swap2(&soft[j].version,&soft[j+1].version);
                strcpy(temp,soft[j].name);
    strcpy(soft[j].name,soft[j+1].name);
    strcpy(soft[j+1].name,temp);
    strcpy(temp,soft[j].author);
    strcpy(soft[j].author,soft[j+1].author);
    strcpy(soft[j+1].author,temp);
            }
        }
    }
```

Here, print the details according to their author's name in alphabetical order. So I was used the bubble short for the integer data type and the normal swapping method for character string data type. Basic string function used for the character string data type . After shorting the date I was print the all details.

```
for(i=1;i<=n;i++){
          for(j=0;j<n-1;j++){
              if(soft[j].year>soft[j+1].year){
                    swap3(&soft[j].price,&soft[j+1].price);
                    swap1(&soft[j].year,&soft[j+1].year);
                    swap2(&soft[j].version,&soft[j+1].version);
                    strcpy(temp,soft[j].name);
                    strcpy(soft[j].name,soft[j+1].name);
                    strcpy(soft[j+1].name,temp);
                    strcpy(temp,soft[j].author);
                    strcpy(soft[j].author,soft[j+1].author);
                    strcpy(soft[j+1].author,temp);
              }
          }
     }
```

Here, print the details according to their year in increasing order. So I was used the bubble short for the integer data type and the normal swapping method for character string data type. Basic string function used for the character string data type. After shorting the date I was print the all details.
After completing my code, I was check using sample inputs and I got Exact output. I shared my output below.

```
D:\New folder (2)\final code.exe

Enter The Number of software:
5
Enter The Software Application Name:microsoft office
Enter The Author name:bill gates
Enter The Software version:1.8
Enter The Softerware Publised year:1988
Enter The Price Of The Software:11000

Enter The Software Application Name:adobe photoshop
Enter The Author name:thomas knoll
Enter The Software version:22.4
Enter The Softerware Publised year:1900
Enter The Price Of The Software:1500

Enter The Software Application Name:windows ten
Enter The Author name:bill gates
Enter The Software version:10.0
Enter The Softerware Publised year:2015
Enter The Price Of The Software:2000

Enter The Software Application Name:sophos antivirus
Enter The Author name:peter lammer
Enter The Software version:10.8
Enter The Softerware Publised year:1985
Enter The Price Of The Software:7500

Enter The Software Application Name:youtube
Enter The Author name:san mateo
Enter The Software version:16.26
Enter The Softerware Publised year:2008
Enter The Price Of The Software:16000

**software application details given by author**

Software Application Name Is:microsoft office
Author Name Is:bill gates
Software Version Is :1.80
Softerware Publised Year:1988
Price Of The Software:11000 Rupees

Software Application Name Is:adobe photoshop
Author Name Is:thomas knoll
Software Version Is :22.40
Softerware Publised Year:1900
Price Of The Software:1500 Rupees
```

```
**software application details given by author**

Software Application Name Is:microsoft office
Author Name Is:bill gates
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Software Application Name Is:windows ten
Author Name Is:bill gates
Software Version Is :10.00
Softerware Publised Year:2015
Price Of The Software:2000 Rupees

Software Application Name Is:sophos antivirus
Author Name Is:peter lammer
Software Version Is :10.80
Softerware Publised Year:1985
Price Of The Software:7500 Rupees

Software Application Name Is:youtube
Author Name Is:san mateo
Software Version Is :16.26
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**software application details accourding to their price**

Software Application Name Is:adobe photoshop
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Software Application Name Is:windows ten
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Software Version Is :16.26
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software application details,given year by author

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software application details accourding to their author name

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```
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**software application details accourding to their year**

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Process exited after 168.8 seconds with return value 5
Press any key to continue . . .
```